CLAIMS

1. A method of creating a borehole in an earth formation, the method comprising the steps of:

a) drilling a section of the borehole and lowering an expandable tubular element into the borehole whereby a lower portion of the tubular element extends into the drilled borehole section;

b) radially expanding said lower portion of the tubular element so as to form a casing in the drilled borehole section; and

c) separating an upper portion of the tubular element from said lower portion so as to allow the separated upper portion to be moved relative to said lower portion.

2. The method of claim 1, further comprising the step of:

d) lowering said separated upper portion through the expanded lower portion formed in preceding step (b).

3. The method of claim 2, further comprising repeating at least one of step a), steps a) and b), steps a), b) and c), and steps a), b), c) and d) until the desired borehole depth is reached, whereby:

- in each repeated step a) the borehole section is drilled subsequent to the borehole section drilled in the preceding step a), whereby the latter borehole section is defined to be the previous borehole section;
- in each repeated step a) the tubular element to be lowered is the upper portion of the tubular element resulting from the preceding step c);
- in each repeated step b) the casing is formed subsequent to the casing formed in the preceding step b),

whereby the latter casing is defined to be the previous casing.

4. The method of any one of claims 1-3, wherein in each step a) the tubular element is lowered into the drilled borehole section simultaneously with drilling of the borehole section.

5. The method of any one of claims 1-4, wherein in each step c) said upper portion is separated from said lower portion at a position where the tubular element extends into the previous casing arranged in the borehole.

6. The method of claim 5, whereby said previous casing has a lower end part of enlarged inner diameter compared to the remainder of the previous casing, and wherein said upper tubular element portion is separated from said lower tubular element portion at a position where the tubular element extends into said lower end part of the previous casing.

7. The method of any one of claims 1-6, wherein in each step c) said upper portion is separated from said lower portion by cutting the tubular element, or by unscrewing a threaded connection of the tubular element.

8. The method of claim 7, wherein said upper portion is separated from said lower portion at a location where the tubular element is substantially unexpanded.

9. The method of any one of claims 1-8, whereby each borehole section is drilled using a drilling assembly which is axially movable through the tubular element, and wherein before at least each repeated step a) the drilling assembly is moved downwardly through the through the tubular element to a position whereby the drilling assembly at least partly extends below the tubular element.

10. The method of claim 9, whereby in said position the drilling assembly is releasably connected to the tubular element, and wherein after drilling the borehole section, the drilling assembly is released from the tubular element and moved upwardly through the tubular element to surface.

11. The method of claim 9 or 10, wherein the drilling assembly is moved through the tubular element by means of a wireline extending from surface through the tubular element, to the drilling assembly.

12. The method of any one of claims 1-11, wherein each step b) comprises arranging an expansion assembly in said lower portion of the tubular element, and operating the expansion assembly so as to expand said lower portion.

13. The method of claim 12, whereby the expansion assembly is operable between a radially expanded mode and a radially retracted mode in which the expansion assembly is movable through the tubular element, and wherein the expansion assembly is arranged in said lower portion of the tubular element by moving the expansion assembly downwardly through the tubular element whereby the expansion assembly is in the retracted mode.

14. The method of claim 13 whereby the expansion assembly is arranged to expand the tubular element upon movement of the expansion assembly from the radially retracted mode to the radially expanded mode thereof, wherein the method comprises alternatingly moving the expansion assembly between the radially retracted mode and the radially expanded mode, and wherein the expansion assembly is progressed through the tubular element during periods of time that the expansion assembly is in the retracted mode.

15. The method of claim 13 or 14, wherein the expansion assembly is progressed through the tubular element by means of a wireline, a tubular string, or a coiled tubing extending from surface through the tubular element, to the expansion assembly.

16. The method of any one of claims 12-15, whereby the expansion assembly is operable to selectively expand the tubular element to a first inner diameter and to a second inner diameter larger than the first inner diameter, and wherein the expansion assembly is operated to expand a lower end part of said lower portion of the tubular element to the second inner diameter and to expand the remainder of said lower portion to the first inner diameter.

17. The method of any one of claims 12-16, whereby the expansion assembly is provided with a cutter for cutting the tubular element or a break-out device for unscrewing a threaded connector of the tubular assembly, and wherein each step c) comprises, after expanding said lower portion of the tubular element operating the cutter to cut the tubular element, or operating the break-out device to unscrew a selected threaded connection of the tubular element, so as to separate said upper portion of the tubular element from said lower portion thereof.

18. The method of claim 17, whereby the cutter or the break-out device is axially spaced upwardly from an expander of the expansion assembly, whereby said lower portion of the tubular element has a substantially unexpanded upper end part, and wherein the cutter is operated to cut the tubular element at said substantially unexpanded upper end part.

19. The method of claim 18, further comprising after cutting the tubular element, or unscrewing the selected

threaded connection of the tubular element, further operating the expansion assembly so as to expand said upper end part of the lower portion of the tubular element.

20. A drilling assembly for use in the method of any one of claims 1-19, the drilling assembly being of a size allowing the assembly to be moved through the tubular element when unexpanded, the drilling assembly comprising a drill bit, a downhole motor arranged to drive the drill bit, and movement means for moving the drilling assembly through the tubular element.

21. The drilling assembly of claim 20, wherein said movement means comprises a connection member for connecting a wireline extending from surface through the tubular element, to the drilling assembly.

22. The drilling assembly of claim 21, wherein the drilling assembly is located in the tubular element, and wherein a wireline extending from surface through the tubular element, is connected to said connection member.

23. The drilling assembly of any one of claims 20-22, further comprising anchoring means for anchoring the drilling assembly in the tubular element such that the drilling assembly at least partly extends below the tubular element.

24. The drilling assembly of claim 23, wherein the anchoring means is radially retractable so as to release the drilling assembly from the tubular element upon radial retraction of the anchoring means.

25. An expansion assembly for use in the method of any one of claims 1-19, the expansion assembly being operable between a radially expanded mode in which the expansion assembly has a diameter larger than the inner diameter of the tubular element when unexpanded, and a radially

retracted mode in which the expansion assembly has a diameter smaller than the inner diameter of the tubular element when unexpanded, and wherein the expansion assembly comprises actuating means for actuating the expansion assembly from the radially retracted mode to the radially expanded mode thereof so as to expand the tubular element when the expansion assembly is positioned in the tubular element.

26. The expansion assembly of claim 25, wherein the expansion assembly further comprises progressing means for axially progressing the expansion assembly through the tubular element.

27. The expansion assembly of claim 26, wherein the progressing means comprises a connector member for connecting a wireline extending from surface through the tubular element, to the expansion assembly.

28. The expansion assembly of claim 27, wherein the expansion assembly is located in the tubular element, and wherein a wireline extending from surface through the tubular element, is connected to said connector member of the expansion assembly.

29. The expansion assembly of any one of claims 25-28, wherein the expansion assembly is selectively operable to expand the tubular element to a first inner diameter and to a second inner diameter larger than the first inner diameter.

30. The expansion assembly of any one of claims 25-29, comprising a cutter for cutting the tubular element.

31. The expansion assembly of claim 30, whereby the cutter is axially spaced upwardly from an expander of the expansion assembly.

32. The method substantially as described hereinbefore with reference to the accompanying drawings.

33. The drilling assembly substantially as described hereinbefore with reference to the accompanying drawings.
34. The expansion assembly substantially as described hereinbefore with reference to the accompanying drawings.